HUNGRY HORSE FISHERIES MITIGATION - SALISH AND KOOTENAI TRIBES 9101901

SHORT DESCRIPTION:
Monitor changes in the fish community of Flathead Lake to verify biological responses to Hungry Horse Dam Mitigation measures. Evaluate techniques to reintroduce kokanee to Flathead Lake and attainment of criteria that define success of kokanee reintroduction. Develop stream restoration projects.

SPONSOR/CONTRACTOR: CSKT
Confederated Salish & Kootenai Tribes
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406/675-2700

GOALS

NPPC PROGRAM MEASURE:
3.A.11

TARGET STOCK	LIFE STAGE	MGMT CODE (see below)
Kokanee, bull trout and cutthroat		

BACKGROUND

HISTORY:
Initiated in 1992 after NPPC adopted Hungry Horse Mitigation Plan (November 1991, see NPPC program: 10.3A.10). Implementation as per NPPC direction upon adoption of Hungry Horse Implementation Plan (March 1993, see NPPC program: 10.3A.11). Cooperation with MFWP and USFWS to monitor program results. Habitat improvement projects accomplished jointly with Polson MacAttack Committee, (structural enhancement), and City of Polson (stream restoration).Beginning in 1995, this program included Project No. 9500400 (Libby Mitigation Plan), which is a program for development of a Plan for NPPC adoption (Section 10.3B1). Public scoping, project site selection and loss/gain assessment for Libby Dam began in 1995, CSKT and MFWP will produce a draft document for submittal to NPPC during 1996.

BIOLOGICAL RESULTS ACHIEVED:
Purpose of project is monitoring biological response of Project Numbers 9101903 and 9101904. Documentation of: kokanee growth rates in Flathead Lake, lake trout predation rates on kokanee, downward trends in cutthroat and bull trout. Definition of baseline condition of fishery in 1992-1993 by creel survey

PROJECT REPORTS AND PAPERS:
(1) Fisheries Mitigation Plan for Losses Attributable to the Construction and Operation of Hungry Horse Dam, MFWP and CSKT, 1991.(2) Hungry Horse Dam Fisheries Implementation Plan, MFWP and CSKT, 1993.(3) Hungry Horse Dam Fisheries Mitigation, Biennial Report, 1992-1993, DOE/BP-60559-2(4) Kokanee Stocking and Monitoring - Flathead Lake - 1993-1994. Deleray et al. MFWP, CSKT, and USFWS, 1995.(5) Flathead Lake Angler Survey, Evarts et al., 1994, CSKT.(6) Kokanee Stocking and Monitoring - Flathead Lake -1995. Hansen et al. CSKT, MFWP, and USFWS. 1996.(7) Summary of Work to Develop Polson Golf Course Spring Creek to Benefit the Flathead Lake Fishery, 1996, Barry Hansen, CSKT.

ADAPTIVE MANAGEMENT IMPLICATIONS:
The monitoring program is designed to determine: (1) the success of habitat improvement/restoration projects on native species providing the feedback loop for action/response, and (2) the success of hatchery-reared kokanee in Flathead Lake. Results of the project will determine the need for continuation of hatchery supplementation and subsequent upgrades in the future. Preliminary conclusion that lake trout predation limits kokanee survival in Flathead Lake. Libby Fisheries Mitigation Plan will guide mitigation activities under Project 8346700.

PURPOSE AND METHODS

SPECIFIC MEASUREABLE OBJECTIVES:
(1) 30% survival of kokanee one year after stocking(2) yearling to adult survival of 10% or 100,000 kokanee(3) harvest of 50,000 kokanee > 11", and fishing pressure of 100,000 hours(4) increases in catch rates of native species(5) linear stream distance of riparian vegetation restored/enhanced by planting or fencing(6) linear distance of stream channel reconstructed(7) preparation of a mitigation plan to compensate for fisheries losses due to the construction and operation of Libby Dam including loss/gain statement, criteria for project prioritization and list of mitigation options(8) stimulation of public interest in the Kootenai Drainage using education measures, public scoping meetings, and a citizens advisory committee.

CRITICAL UNCERTAINTIES:
(1) Quantification of trophic interaction between Mysis, lake trout, and kokanee,(2) Population levels of chaconne capable of sustaining a constituency of anglers,(3) Sustainable hatchery products to meet program goals,(4) Biological response to habitat improvement.The timing of submittal to NPPC is subject to funding and efficiency of personnel. Note: No new personnel have been hired to complete the plan.

BIOLOGICAL NEED:
The losses attributed to Hungry Horse Dam were adopted by NPPC and incorporated in Section 10.3A.10: (1) "Replace lost annual production (minimum of 65,000 westslope cutthroat annually) from the inundated 43 miles of tributaries and 35 miles of South Fork Flathead River using a mix of habitat improvement, improvement in fish passage, and hatchery production."(2) "Replace lost annual production of 250,000 young bull trout in the lost stream sections using a mix of the above fisheries techniques."(3) "Replace lost production of 100,000 kokanee adults initially through hatchery production and pen rearing in Flathead Lake, partially replace lost forage for lake trout in Flathead Lake."Mitigation for the construction and operation of Libby Dam is called for by the NPPC program.

HYPOTHESIS TO BE TESTED:
Kokanee will survive in a lake currently dominated by Mysis, lake trout, and lake whitefish. Fluvial habitat improvements will increase lacustrine fish population density.See Project 8346700 in reference to mitigation implementation.

METHODS:
(1) quantification of losses of kokanee attributed to predation by estimation of lake trout abundance and rate of predation to measure Criterion #1 (Hungry Horse Implementation Plan p. 27), (2) hydroacoustic survey with species verification by gillnetting to measure Criterion #1, 30% kokanee survival over first year, and Criterion #2, yearling to adult survival of 10% (Hungry Horse Implementation Plan, p. 27), (3) surveys of returning adult kokanee to measure Criterion #2 (Hungry Horse Implementation Plan, p.27), (4) creel surveys to measure Criterion #3, annual harvest of 50,000 >11" kokanee (Hungry Horse Implementation Plan, p.27), (5) annual spring gill-net surveys of native species to evaluate population trends, (6) annual lake-wide hydroacoustic estimates of pelagic species.See Project 9500400 in reference to Libby Plan development.

PLANNED ACTIVITIES

SCHEDULE:

PROJECT COMPLETION DATE:
Ongoing

CONSTRAINTS OR FACTORS THAT MAY CAUSE SCHEDULE OR BUDGET CHANGES:
Monitoring of native species incurs some mortality, which will be continually evaluated to insure that population-level impacts do not occur. Culture and outplanting of native species may compromise genetic integrity of local populations. Continued "predator trap" occupied by lake trout, public sentiments concerning mitigation.

OUTCOMES, MONITORING AND EVALUATION

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SUMMARY OF EXPECTED OUTCOMES

Expected performance of target population or quality change in land area affected:
A conclusive documentation of the results of the five year test of kokanee restoration, trend analysis of native species abundance in Flathead Lake, quantification of increases in recruitment of westslope cutthroat trout from Dayton and Polson Spring Creek.Libby Mitigation Plan and subsequent implementation.

Present utilization and convservation potential of target population or area:
Low utilization and high potential

Assumed historic status of utilization and conservation potential:
High utilization and high potential

Long term expected utilization and conservation potential for target population or habitat:
Moderate utilization and high potential

Contribution toward long-term goal:
This project will provide the necessary information to give the NPPC recommendations for the HHR production program as called for in the Program.

Physical products:
The monitoring portion has no physical products, the restoration portion has both accomplished and planned products including channel restoration, fencing, irrigation modification for flow enhancement, nutrient reduction, fish passage improvement, and bank vegetation restoration.

Environmental attributes affected by the project:
Reduced nutrients, suspended sediments and temperature, increased summer discharge, and reduced width/depth ratios of Flathead Lake tributaries

Changes assumed or expected for affected environmental attributes:
Reduced nutrients, suspended sediments and temperature, increased summer discharge, and reduced width/depth ratios of Flathead Lake tributaries

Information products:
Annual reports and sub-project specific reports.

Coordination outcomes:
Flathead Lake and river creel census done. This was completed to provide the baseline information needed for the M/E program.

MONITORING APPROACH

(1) quantification of losses of kokanee attributed to predation by estimation of lake trout abundance and rate of predation to measure Criterion #1 (Hungry Horse Implementation Plan p. 27),(2) hydroacoustic survey with species verification by gillnetting to measure Criterion #1, 30% kokanee survival over first year, and Criterion #2, yearling to adult survival of 10% (Hungry Horse Implementation Plan, p. 27),(3) surveys of returning adult kokanee to measure Criterion #2 (Hungry Horse Implementation Plan, p.27),(4) creel surveys to measure Criterion #3, annual harvest of 50,000 >11" kokanee (Hungry Horse Implementation Plan, p.27),(5) annual spring gill-net surveys of native species to evaluate population trends,(6) annual lake-wide hydroacoustic estimates of pelagic species.See Project 9500400 in reference to Libby Plan development.

Provisions to monitor population status or habitat quality:

All practical enumeration techniques have been employed and additional ones are continually being implemented including acoustics, mark/recapture, trapping, gillnetting, and biological indicies,

Data analysis and evaluation:
Annual peer reviewed summaries employing tests of success based on established criteria.

Information feed back to management decisions:
Annual interagency meetings to evaluate and integrate the results of the project

Critical uncertainties affecting project's outcomes:
Peer review and adaptive management

EVALUATION
Long term upward trends in target species

Incorporating new information regarding uncertainties:
All decisions must be made in the context of uncertainty and new information will only reduce the ever present uncertainty

Increasing public awareness of F&W activities:
Public meetings, stakeholder meetings, public opinion surveys, and information disseminated during creel surveys

RELATIONSHIPS

RELATED BPA PROJECT	RELATIONSHIP
9500400 MFWP/CSKT Libby Mitigation Plan	
9501200 IRC Monitoring	
9502600 MFWP/CSKT Model Watershed	
9101904 USFWS, Creston Hatchery	
9101903 MFWP Hungry Horse Habitat Improvement	

OPPORTUNITIES FOR COOPERATION:
Monitoring of complex fisheries in a large lake requires cooperation and coordination with MFWP. Evaluation of the chaconne test requires five years of annual production of 1,000,000 yearling kokanee by USFWS Creston Hatchery.Final form depends on NPPC approval.

COSTS AND FTE

1997 Planned: $66,920

FUTURE FUNDING NEEDS:

FY	$ NEED	% PLAN	% IMPLEMENT	% O AND M
1998	$145,000			
1999	$145,000			
2000	$145,000			
2001	$145,000			

PAST OBLIGATIONS (incl. 1997 if done):

FY	OBLIGATED
1992	$51,500
1993	$42,786
1994	$22,900
1995	$26,952
1996	$55,424
1997	$66,342

TOTAL: $265,904

Note: Data are past obligations, or amounts committed by year, not amounts billed. Does not include data for related projects.

65,000

1997 OVERHEAD PERCENT: 12%

HOW DOES PERCENTAGE APPLY TO DIRECT COSTS:
[Overhead % not provided so BPA appended older data.]